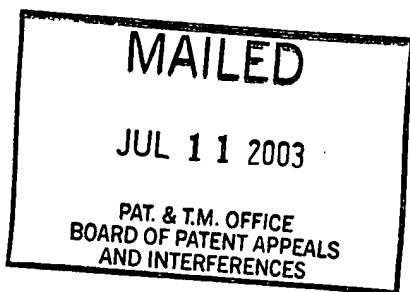


The opinion in support of the decision being entered today was ~~not~~ written for publication and is **not** binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE



BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

***Ex parte*** ROBERT S. SCHEFEE,  
NORMAN H. LUNDSTROM and JAMES D. MARTIN

Appeal No. 2002-0051  
Application 09/363,013

ON BRIEF

Before ABRAMS, STAAB, and McQUADE, ***Administrative Patent Judges.***

STAAB, ***Administrative Patent Judge.***

***DECISION ON APPEAL***

This is a decision in an appeal from the examiner's final rejection of claims 15-20, all the claims currently pending

" Appeal No. 2002-0051  
Application 09/363,013

in the application. The amendment submitted with the appeal brief changing the dependency of claims 17 and 19 has been entered.

Appellants' invention pertains to a liquid rocket propellant. More particularly, appellants' invention pertains to a premixed liquid monopropellant mixture consisting of an oxidizer component and a fuel component. As made clear from a reading of appellants' disclosure, the premixed liquid monopropellant of the present invention differs from a liquid bipropellant in that in the bipropellant the oxidizer and the fuel are stored separately and then mixed when the propellant is burned, whereas in the premixed liquid monopropellant of the present invention the oxidizer and fuel are stored together. As explained by appellants on page 8 of the specification "[a]n advantage presented by the premixed liquid monopropellant solutions and mixtures of the present invention is their requirement for only one storage tank, one pump and one controller as compared to the dual components necessary for the separate fuel and oxidizer solutions of a bipropellant propulsion system."

Appeal No. 2002-0051  
Application 09/363,013

The sole reference applied by the examiner against the claims in the final rejection is:

Mueller	3,700,393	Oct. 24, 1972
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Claims 15-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mueller.

Reference is made to appellants' brief (Paper No. 18) and to the final rejection and examiner's answer (Paper Nos. 14 and 20) for the respective positions of appellants and the examiner regarding the merits of this rejection.

### ***Discussion***

Claims 15 and 20, the two independent claims on appeal read as follows:

15. A premixed liquid monopropellant which consists essentially<sup>(1)</sup> of an aqueous mixture of hydrogen peroxide and ethanol.

20. A premixed liquid monopropellant which consists of 80% hydrogen peroxide having a concentration in water of 70%, 12% ethanol and 8% water.

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<sup>1</sup> The copy of claim 15 in the appendix to the brief is incorrect in that it does not include the word "essentially".

Mueller, the sole reference relied upon by the examiner in the rejection of the appealed claims, is directed to liquid bipropellants "based on a liquid oxidizer comprised of a concentrated aqueous solution of hydroxylammonium perchlorate (HAP) and a compatible liquid fuel" (col. 2, lines 10-12). Table 1 of Mueller is described as providing "examples and data . . . given for purposes of illustration and better understanding of the invention" (col. 3, lines 17-18). Based on Mueller's statement that the invention thereof pertains to bipropellants comprising HAP, it would appear that only the first four entries in Table 1, which comprise an oxidizer of HAP, correspond to Mueller's invention, with the remainder of the entries of Table 1 representing comparative examples of propellant systems. The last entry of Table 1 indicates a propellant comprising an oxidizer component of 70% weight  $H_2O_2$  and a fuel component of ethyl alcohol. This appears to be the only mention in Mueller of a propellant comprising an oxidizer component of hydrogen peroxide and a fuel component of ethanol.

In rejecting the appealed claims as being unpatentable over Mueller, the examiner states (final rejection, pages 2-3):

Appeal No. 2002-0051

Application 09/363,013

Mueller '393 disclose examples of bipropellants systems of aqueous hydrogen peroxide and ethyl alcohol (col. 3, lines 30-35).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to mix the component of the propellant before it is fed to the combustion chamber in order to obtain a monopropellant and to add more water to the composition.

It thus appears to be the examiner's position as stated in the final rejection that Mueller discloses a bipropellant comprising hydrogen peroxide and ethanol, but that it would have been obvious to premix these components to create a monopropellant.

In an apparent alternative theory of unpatentability, the examiner states the following on page 3 of the answer in response to appellants' argument:

Applicant is arguing that his invention is directed to a monopropellant and the prior art is directed to a bi-propellant, claiming that this is a critical important difference. Mueller discloses in Table 1 the use of hydrogen peroxide 70%/w as the oxidizer and ethyl alcohol as the fuel with the weight percent disclosed in the third column of Table 1. But the mere statement of a new use for an otherwise old or obvious composition cannot render a claim to the composition patentable . . . . Terms merely setting forth intended use for, or a property

inherent in, an otherwise old composition do not differentiate the claimed composition from those known to the prior art. . . . Hydrogen peroxide is well known to be used in monopropellant and bi-propellant systems and Mueller clearly establish that the composition is notoriously well known in the art. . . . [L]ooking at claim 15[,] the 103 rejection is based on the lack of novelty in the claimed subject matter, e.g., as evidenced by a complete disclosure of the propellant in the prior art (Table 1), which evidence is the "ultimate or epitome of obviousness". . . .

Considering first the examiner's position as stated in the final rejection, the theory of obviousness advanced therein is premised on the examiner's opinion (final rejection, pages 2-3) that it would have been obvious to one of ordinary skill in the art "to mix the component[s] of the propellant [of the last entry of Table 1 of Mueller] before it is [sic, they are] fed to the combustion chamber in order to obtain a monopropellant. . . ."

Rejections based on 35 U.S.C. § 103 must rest on a factual basis. ***In re Warner***, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967), ***cert. denied***, 389 U.S. 1057 (1968). In making such a rejection, the examiner has the initial duty of

supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *Id.*

In the present case, the examiner has failed to advance any factual basis to support the conclusion that it would have been obvious to one of ordinary skill in the art to modify the hydrogen peroxide/ethyl alcohol propellant of Mueller in the manner proposed. The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification (*see In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). Mueller contains no such suggestion.

Accordingly, we cannot support the standing 35 U.S.C. § 103(a) rejection of claims 15-20 as being unpatentable over Mueller based on the examiner's theory of obviousness as set forth in the final rejection.

As to the examiner's alternative theory as set forth in the answer, that is, that the subject matter of at least claim 15 lacks novelty over Mueller, we appreciate that there is support

for the practice of nominally basing a rejection on § 103 when, in fact, the actual ground of rejection is that the claims are anticipated by the prior art. **See Jones v. Hardy**, 727 F.2d 1524, 1529, 220 USPQ 1021, 1025 (Fed. Cir. 1984); **In re Fracalossi**, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982); **In re Pearson**, 494 F.2d 1399, 1402, 181 USPQ 641, 644 (CCPA 1974). We also appreciate that anticipation does not require recognition of inherent properties that may be possessed by the prior art (**see Verdegaal Bros., Inc. v. Union Oil Co.**, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir.), **cert. denied**, 484 U.S. 827 (1987)) and that the recitation of an intended use for an old product does not make a claim to that old product patentable (**In re Schreiber**, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997)). Be that as it may, the examiner still bears the initial burden of making out a *prima facie* case, as by providing a basis in fact and/or technical reasoning which reasonably supports the position that what is allegedly inherent would necessarily flow from the teachings of the prior art. **Behr v. Talbott**, 27 USPQ2d 1401, 1407-08 (Bd. Pat. App. & Int. 1992).



In the present case, it not clear what claim terminology "merely [sets] forth intended use" (answer, page 3) or what claimed property the examiner considers to be "inherent" in the disclosure of Mueller. In any event, the examiner has not explained, and it is not apparent to us, how (or under what circumstances) any of the fuels disclosed in Mueller, and in particular the last entry in Table 1 thereof, would constitute a premixed liquid monopropellant as called for in the claims, as opposed to a bipropellant. In this regard, the mere fact that a certain thing may result from a given set of circumstances is not sufficient to establish inherency. ***In re Oelrich***, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981).

For this reason we also cannot support the standing 35 U.S.C. § 103(a) rejection of claims 15-20 as being unpatentable over Mueller based on the examiner's theory of obviousness as set forth in the answer.

In light of the foregoing, we are constrained to reverse the decision of the examiner finally rejecting the appealed claims as being unpatentable over Mueller.

***Remand***

This application is remanded to the examiner to consider the patentability of appellants' claims in light of the following prior art documents and any other pertinent prior art the examiner may be aware of, and to take whatever action is deemed appropriate as a result of such consideration.<sup>2</sup>

Japanese published patent document 56014584A, published February 12, 1981. A Derwent published abstract of this Japanese patent document indicates that the Japanese patent document pertains to an alcohol fuel for internal combustion engines comprising a mixture of methanol or ethanol and an aqueous hydrogen peroxide solution.

Japanese published patent document 02099662A, published April 11, 1990. A Derwent published abstract of this Japanese patent document indicates that the Japanese patent document pertains to a bleaching agent composed of an aqueous hydrogen peroxide solution containing 10-90 weight percent methanol and/or ethanol.

Japanese published patent document 07315345A, published December 5, 1995. A Derwent published abstract of this Japanese patent document indicates that the Japanese patent document pertains to a method of sterilizing containers that includes providing 50 percent

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<sup>2</sup>Copies of the noted documents are appended to this decision. It should not be assumed that a comprehensive additional search has been conducted by this merits panel.

by weight hydrogen peroxide in one tank, providing pure ethanol in another tank, and then pumping a regulated amount of the hydrogen peroxide and ethanol into a third tank.

An article by P. R. Stokes entitled "Hydrogen Peroxide for Power and Propulsion," read at the Science Museum in London on January 14, 1998.<sup>3</sup> The article includes a discussion of efforts by Germany in the 1930s to develop highly concentrated hydrogen peroxide as a rocket fuel. Note, for example, the statement appearing at the top of page 4 of the article, that "[a]nother fatality now occurred when a trial was undertaken by a Dr. Wahmke in attempting to pre-mix hydrogen peroxide and alcohol upstream of the [rocket] chamber. The intention had been use a 'monergol' propellant, combining oxidant and fuel . . . ."

An article by Harold N. Feigenbaum et al. entitled "Practical Experiences with High Test Hydrogen Peroxide."<sup>4</sup> Note, for example, Figure 4 on page 9, which is a phase diagram for mixtures of hydrogen peroxide and ethanol.

In the event the examiner determines that a rejection of any of appellants' claims based on one or more of the above

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<sup>3</sup>Source: <http://www.ee.surrey.ac.uk/SSC/H2O2CONF/PStokes.htm>.

<sup>4</sup>Source: <http://www.ee.surrey.ac.uk/SSC/H2O2CONF/feigenbaum.htm>. The publication date of the article is not known, however, the "Page info" feature (copy attached) of the web browser used to view this article indicates that it was last modified on October 26, 1998.

Appeal No. 2002-0051  
Application 09/363,013

noted Japanese patent documents would be appropriate, the examiner should obtain a complete translation of said document in order to fully evaluate the teaching thereof.

## Summary

The decision of the examiner is reversed.


This case is remanded to the examiner for consideration of the matters noted above.

## REVERSED AND REMANDED

NEAL E. ABRAMS  
Administrative Patent Judge

*Lawrence J. Staab*  
LAWRENCE J. STAAB  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

  
JOHN P. McQUADE  
Administrative Patent Judge

LJS:psb

Appeal No. 2002-0051  
Application 09/363,013

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